

16.0 Shiprock, New Mexico, Disposal Site

16.1 Compliance Summary

The Shiprock Disposal Site, inspected on June 18, 2003, was in good condition. Woody vegetation was removed from the cover, but vegetation encroachment continues on the riprap cover, side slopes, and diversion channels. Damage by runoff from storms in 2001 and 2002 was repaired in 2003. Repairs included reconstructing the outflow channel to its confluence with Bob Lee Wash, repairing the security fence, and replacing a boundary monument. Accumulations of weeds, trash, and windblown sand also were removed during 2003. No requirement for a follow-up or contingency inspection was identified.

16.2 Compliance Requirements

Requirements for the long-term surveillance and maintenance of the Shiprock, New Mexico, Uranium Mill Tailings Radiation Control Act (UMTRCA) Title I disposal site are specified in the *Long-Term Surveillance Plan for the Shiprock Disposal Site, Shiprock, New Mexico* (DOE/AL/62350–60F, Rev. 1, U.S. Department of Energy [DOE], Albuquerque Operations Office, September 1994) and in procedures established by the DOE office at Grand Junction to comply with requirements of Title 10 *Code of Federal Regulations* Part 40.27 (10 CFR 40.27). These requirements are listed in Table 16–1.

Table 16–1. License Requirements for the Shiprock, New Mexico, Disposal Site

Requirement	Long-Term Surveillance Plan	This Report
Annual Inspection and Report	Section 6.0	Section 16.3.1
Follow-up or Contingency Inspections	Section 7.0	Section 16.3.2
Routine Maintenance and Repairs	Section 8.0	Section 16.3.3
Ground Water Monitoring	Section 5.0	Section 16.3.4
Corrective Action	Section 9.0	Section 16.3.5

16.3 Compliance Review

16.3.1 Annual Inspection and Report

The site, located south of Shiprock, New Mexico, was inspected on June 18, 2003. Results of the inspection are described below. Features and photograph locations (PLs) mentioned in this report are shown on Figure 16–1. Numbers in the left margin refer to items in the Executive Summary table.

16.3.1.1 Specific Site Surveillance Features

Access Road, Fence, Gates, and Signs—Access to the main entrance gate is gained by traveling through a gravel pit facility operated by the Navajo Engineering and Construction Authority. DOE secured perpetual access to the site through a Custody and Access Agreement with the Navajo Nation.

16A The security fence along the site perimeter was in good condition; some posts are bent along the west side. A section of fence downstream of the outflow channel was damaged by runoff from a severe storm in September 2002. This section was repaired during winter 2003. Tumbleweeds and windblown trash accumulate along upwind portions of the perimeter fence and must be removed every 2 or 3 years to mitigate potential fire hazards associated with the weeds and to maintain site appearance. Accumulations of weeds and trash noted during the 2002 inspection were removed in May 2003, in addition to windblown sand accumulations along the southwest section of fence.

All three vehicle gates—the main entrance gate at the east corner of the site (near the terrace escarpment), the gate providing terrace access at the northwest corner of the site, and the old entrance gate at the west corner of the site—were in good condition and locked.

Four entrance signs and 16 pairs of perimeter signs (one standard perimeter sign with text; one pictorial sign showing the disposal cell) are attached to the security fence. All signs were intact and in good condition.

Site Markers and Monuments—The two site markers were in good condition. Minor cracking in the concrete base of SMK-1 was sealed in May 2003.

16B Erosion resulting from the July 2001 storm washed away boundary monument BM-1. This boundary monument was replaced in a new location in February 2003. Boundary monuments BM-4 and BM-6 were buried with windblown sand and will be uncovered during the 2004 inspection. The other five boundary monuments were in good condition. The three survey monuments were in good condition.

Monitor Wells—Ground water monitoring is not required by the Long-Term Surveillance Plan for this site. Monitor wells for ongoing ground water remediation activities, in and around the site, are not included in the annual inspection.

16.3.1.2 Transects

To ensure a thorough and efficient inspection, the site was divided into three areas referred to as transects: (1) the disposal cell (including the riprap-covered top and side slopes, diversion channels, and outflow channel); (2) the terrace area north and northeast of the disposal cell; and (3) the outlying area.

Disposal Cell, Diversion Channels, and Outflow Channel—The top and side slopes of the cell, covered with rock riprap, were in good condition. No evidence of settling, erosion, or animal burrowing was found.

16C Significant vegetation growth has been noted during past inspections on the cell top and the east, northeast, and northwest side slopes. These areas were sprayed in June 2001 in a continuing effort to reduce the seed source and control future plant encroachment on the disposal cell. Numerous patches of annual grasses and weeds were present on the cell top and the side slopes in 2003. Several deep-rooted woody shrubs were found on the cell top and were cut and treated with herbicide (PL-1). The population of woody shrubs growing on the cell side slopes continues to increase. The DOE will continue to monitor and control vegetation growth to maintain the performance of the cell.

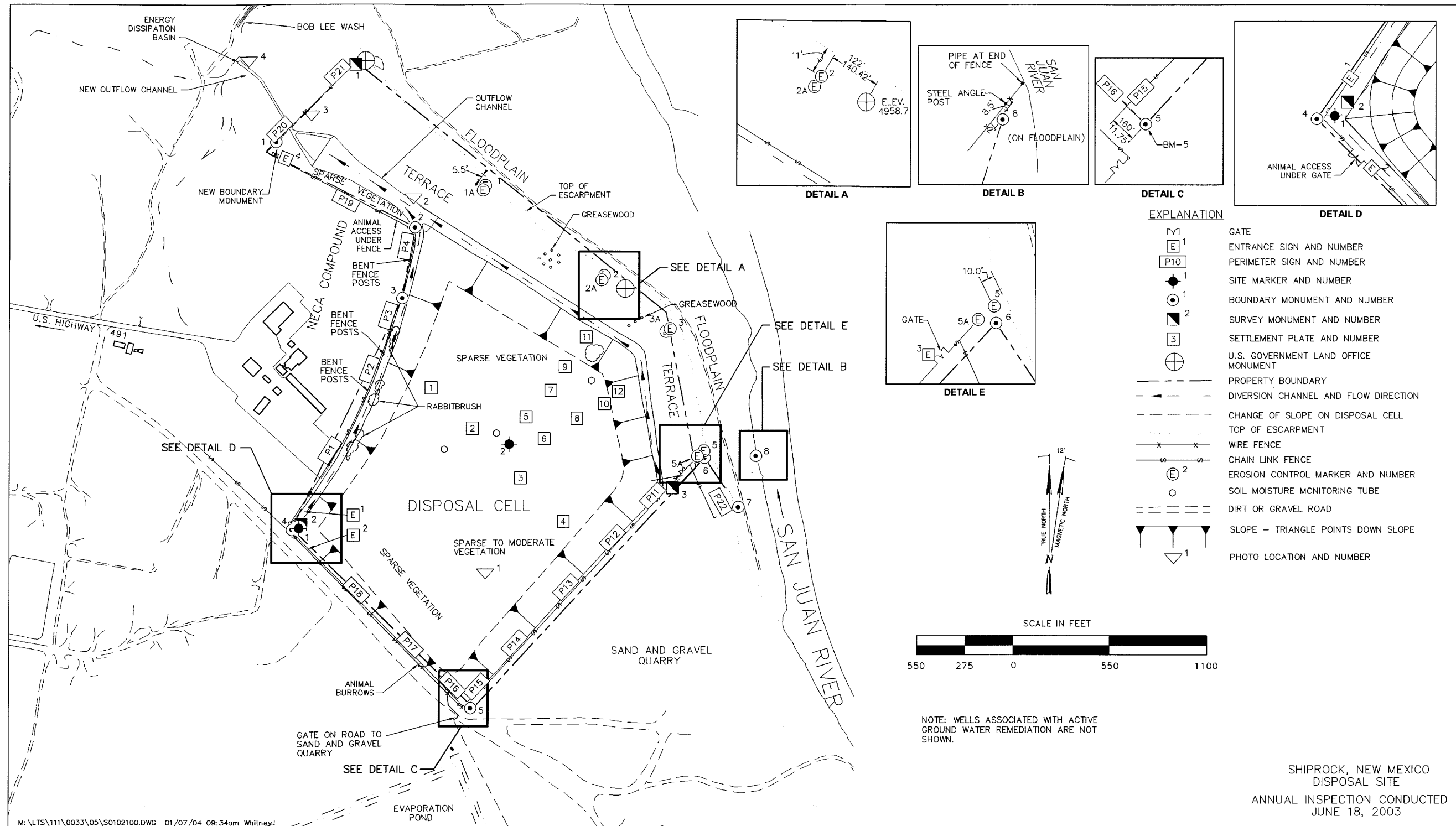


Figure 16-1. 2003 Annual Compliance Drawing for the Shiprock, New Mexico, Disposal Site

Diversion channels around the base of the disposal cell were in good condition. Site drainage is ultimately directed toward the outflow channel at the northwest corner of the site. Rock cover in the outflow channel was in good condition. Vegetation is increasing in the diversion and outflow channels (PL-2); however, the performance of the channels is not impaired.

16D Erosion damage downstream of the riprap-armored outflow channel was repaired in winter 2003. The outflow channel was extended to Bob Lee Wash and was lined with rock-filled gabions (PL-3). A gabion-lined energy dissipation basin was constructed at the confluence with Bob Lee Wash (PL-4). Additionally, the west side of the wash downstream of the outflow channel was reinforced with gabions to prevent erosion of an access road.

Terrace and Site Perimeter—The terrace is the area north and northeast of the disposal cell between the cell and the escarpment, excluding the outflow channel. Four sets of erosion control markers are in place along the terrace escarpment. All markers were in good condition and there was no evidence of erosion of the terrace or escarpment.

Outlying Area—A sand and gravel pit is located immediately southeast of the disposal cell. Gravel operations have had no apparent affect on disposal site security or integrity.

As part of on-going ground water remediation efforts at the Shiprock disposal site, DOE constructed an 11-acre lined evaporation pond in a former borrow area across the public road southwest of the disposal cell. A chain-link security fence encloses the area. Although the activities associated with the treatment of contaminated ground water at this site are not within the scope of the Long-Term Surveillance Plan, the pond will be monitored for general condition and security during future inspections. At the time of the 2003 site inspection, there were no concerns or issues noted with this area.

16.3.2 Follow-Up or Contingency Inspections

No follow-up or contingency inspections were required in 2003.

16.3.3 Routine Maintenance and Repairs

In 2003, DOE reconstructed the outflow channel, repaired a damaged fence, replaced a missing boundary monument, removed deep-rooted plants from the cell top, and cleared windblown weeds, trash, and sand from fences.

16.3.4 Ground Water Monitoring

Ground water monitoring is not required at this site because of poor water quality and low yield in the uppermost aquifer beneath the disposal cell.

16.3.5 Corrective Action

Corrective action is action taken to correct out-of-compliance or hazardous conditions that create a potential health and safety problem or that may affect the integrity of the disposal cell or compliance with 40 CFR 192.

No corrective action was required in 2003.

16.3.6 Photographs

Table 16–2. Photographs Taken at the Shiprock, New Mexico, Disposal Site

Photograph Location Number	Azimuth	Description
PL–1	210	Tamarisk on the cell top before being cut and treated with herbicide.
PL–2	300	Vegetation in the outflow channel.
PL–3	280	Reconstructed outflow channel where it exits the property.
PL–4	220	Energy dissipation basin at the mouth of the outflow channel in Bob Lee Wash.



SHP 6/2003. PL–1. Tamarisk on the cell top before being cut and treated with herbicide.



SHP 6/2003. PL-2. Vegetation in the outflow channel.



SHP 6/2003. PL-3. Reconstructed outflow channel where it exits the property.



SHP 6/2003. PL-4. Energy dissipation basin at the mouth of the outflow channel in Bob Lee Wash.

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